N° 14,402 A.D. 1897

Date of Application, 14th June, 1897

Complete Specification Left, 14th Mar., 1898—Accepted, 14th May, 1898

PROVISIONAL SPECIFICATION.

Improvements in and relating to Brakes for Velocipedes and other Road Vehicles.

I, ERNEST MONNINGTON BOWDEN, of 9, Fopstone Road, Earls Court, London, in the County of Middlesex, Journalist, do hereby declare the nature of this invention to be as follows:—

This invention relates to an improved brake mechanism for velocipedes and other road vehicles, applicable more particularly to the rear or driving wheels of velocipedes, and it consists of certain improvements hereinafter more particularly specified, the object being to simplify the construction and generally render such mechanism more simple and reliable.

Hitherto in brakes applied to the rear or driving wheels of velocipedes the operating motion has been imparted from the brake lever or other operating device to the brake block or its equivalent by means either of a series of levers bell crank and connecting rods, or by bands, chains or cords and bell cranks or guide pulleys, and in some instances by means of pneumatic or hydraulic tubes. According to my invention I employ a connection consisting of two flexible members, one or both being inextensible and the other, or both, incompressible in length. These members are held together in such a manner as to have a free and independent longitudinal sliding movement with respect to one another. A convenient construction is one in which the incompressible member takes the form of a tube made of wire wound in a spiral form with the spirals in close contact with one another, so that although it is incompressible it is also flexible, and the inextensible member takes the form of a rod or wire preferably made of stranded wire to retain the requisite flexibility, the said inextensible member passing through the tubular incompressible member.

This transmitting connection can be carried from the operating device to the brake mechanism by winding or carrying it round the frame of the machine or in any other convenient manner, the ends of the tubular member being held in suitable brackets adapted to be fixed one of them to the handle bar or its equivalent, or to the front part of the frame of the machine, either directly or indirectly, and the other either to the rear part of the frame of the machine or to some part of the brake mechanism itself, either directly or indirectly, and the ends of the inner or inextensible member being connected to the operating device and the brake mechanism respectively.

The brake mechanism may be adapted to act on the tyre of the wheel, on a drum carried by the wheel or its axle, or in any other suitable place, but on a pneumatic-tyred velocipede I prefer it to act on the rim of the wheel as such a brake requires only a small amount of power and removes all risk or damage to the tyre.

A convenient construction of rim brake for safety bicycles is a pair of curved levers pivotted to the frame of the machine and nearly encircling the rim and tyre of the wheel. The inner ends of these levers are shaped to engage with the rim of

[*Price* 8*d*.]

the wheel and their outer ends overlap a convenient distance. To the outer end of one lever is connected the tubular or incompressible member of the transmitting connection and to the outer end of the other lever is connected the inextensible member thereof, so that when the operating device is actuated to pull on the inextensible member the said levers are forced apart or their two overlapping ends are drawn together and thus bring the other ends of the said levers against the rim of the wheel. This form of rim brake may be used where suitable on other types of road vehicles, but the flexible transmitting connection can be adapted to operate a variety of different forms of brake, or two or more brakes simultaneously.

Dated this 14th day of June 1897.

ROBERT E. PHILLIPS, Assoc. M. Inst. C.E., M.I, Mech. E.,
Consulting Engineer and Patent Agent,
70, Chancery Lane, London, W.C., Agent for the Applicant.

COMPLETE SPECIFICATION.

Improvements in and relating to Brakes for Velocipedes and other Road Vehicles.

I, ERNEST MONNINGTON BOWDEN, of 9, Fopstone Road, Earls Court, London, in the County of Middlesex, Journalist, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to an improved brake mechanism for velocipedes and other road vehicles, applicable more particularly to the rear or driving wheels of velocipedes, and it consists of certain improvements hereinafter more particularly specified, the object being to simplify the construction and generally render such mechanism more simple and reliable.

Hitherto in brakes applied to the rear or driving wheels of velocipedes the operating motion has been imparted from the brake lever or other operating device to the brake block or its equivalent by means either of a series of levers bell cranks and connecting rods, or by bands, chains or cords and bell cranks or guide pulleys, and in some instances by means of pneumatic or hydraulic tubes. According to my invention I employ a connection consisting of two flexible members of one or both, being inextensible and the other, or both, incompressible in length. These members are held together in such a manner as to have a free and independent longitudinal sliding movement with respect to one another. A convenient construction is one in which the incompressible member takes the form of a tube made of wire wound in a spiral form with the spirals in close contact with one another, so that although it is incompressible it is also flexible, and the inextensible member takes the form of a rod or wire preferably made of stranded wire to retain the requisite flexibility, the said inextensible member passing through the tubular incompressible member.

This transmitting connection can be carried from the operating device to the brake mechanism by winding or carrying it round the frame of the machine or in any other convenient manner, the ends of the tubular member being held in suitable brackets adapted to be fixed one of them to the handle bar or its equivalent, or to the front part of the frame of the machine, either directly or indirectly, and the other either to the rear part of the frame of the machine or to some part of the brake mechanism itself, either directly or indirectly, and the ends of the inner or inextensible member being connected to the operating device and the brake mechanism respectively.

The brake mechanism may be adapted to act on the tyre of the wheel, on a drum or disc carried by the wheel or its axle, or in any other suitable place, but on a pneumatic-tyred velocipede I prefer it to act on the rim of the wheel as such a brake requires only a small amount of power and removes all risk or damage to the tyre.

A convenient construction of rim brake for safety bicycles is a pair of curved levers pivotted to the frame of the machine and nearly encircling the rim and tyre of the wheel. The inner ends of these levers are shaped to engage with the rim of the wheel and their outer ends overlap a convenient distance. To the outer end of one lever is connected the tubular or incompressible member of the transmitting connection and to the outer end of the other lever is connected the inextensible member thereof, so that when the operating device is actuated to pull on the inextensible member the said levers are forced apart or their two overlapping ends are drawn together and thus bring the other ends of the said levers against the rim of the wheel. This form of rim brake may be used where suitable on other types of road vehicles, but the flexible transmitting connection can be adapted to operate a variety of different forms of brake, or two or more brakes simultaneously.

In the accompanying drawing which shows by way of illustration this invention applied to a bicycle,

Figure 1 is a broken view in side elevation of a bicycle fitted with the improved brake.

Figures 2 and 3 are broken views in side elevation and plan respectively of the operating mechanism on the handle bar, and

Figure 4 is a broken view in elevation of the brake mechanism adapted to act on the rim of the wheel.

Throughout the views similar parts are marked with like letters of reference.

The operating mechanism consists of a hand lever A pivotted to a bracket x mounted on the handle bar X in the well-known manner. The transmitting mechanism consists of two flexible members B and C. The former is incompressible and is made of tubular form and the latter is inextensible and passes through the member B. The flexible incompressible member is made of wire wound spirally in close contact and the flexible inextensible member consists of a length of wire preferably made of several strands.

The brake mechanism consists of a pair of curved levers D and D^1 pivotted to snugs y or their equivalents carried by the fork Y of the frame of the machine. The lower ends of these levers carry blocks d of any suitable material and are adapted to engage with the wheel rim. The upper ends of the levers overlap, the end of the member B of the transmitting mechanism being fixed to the end of one lever (D) and the end of the member C of the transmitting mechanism being connected to the end of the other lever (D^1).

The flexible transmitting mechanism is carried from the handle bar to the brake mechanism by winding it round the members of the frame as shown in Figure 1. The end of the member B of the transmitting mechanism at the handle bar fits in a socket in a bracket x^1 thereon. The end of the member C of the transmitting mechanism at the handle bar is connected to the hand lever A as shown by Figures 1 and 2.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

(1) Brake operating mechanism consisting of a pivotted hand lever, and of a connecting medium whereby the motion of the hand lever is imparted to the braking mechanism, the said connecting mechanism consisting of two flexible members one of which is incompressible and the other inextensible, as set forth.

(2) A brake consisting of a pivotted hand lever forming the operating mechanism a pair of curved levers pivotted so as to act on the rim of one of the wheels of the

vehicle forming the brake gear, and a pair of flexible members one of tubular form and incompressible and the other inextensible and adapted to pass through the tubular member forming the transmitting mechanism, the ends of the tubular incompressible member being fixed to one of the curved brake levers and to a bracket fixed to the part to which the hand lever is pivotted respectively and the ends of the inextensible member being connected to the other curved brake lever and to the hand lever respectively, as set forth.

(3) The combination of parts herein specified and illustrated by the accompanying drawing forming my improvements in and relating to brakes.

Dated this 14th day of March 1898.

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BOWDEN'S COMPLETE SPECIFICATION.

1 SHEET

FIG. 1.

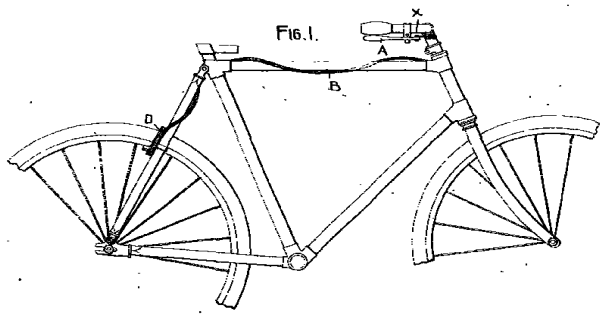


FIG. 2.

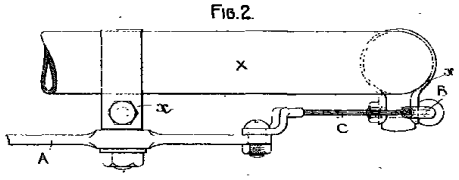


FIG. 3.

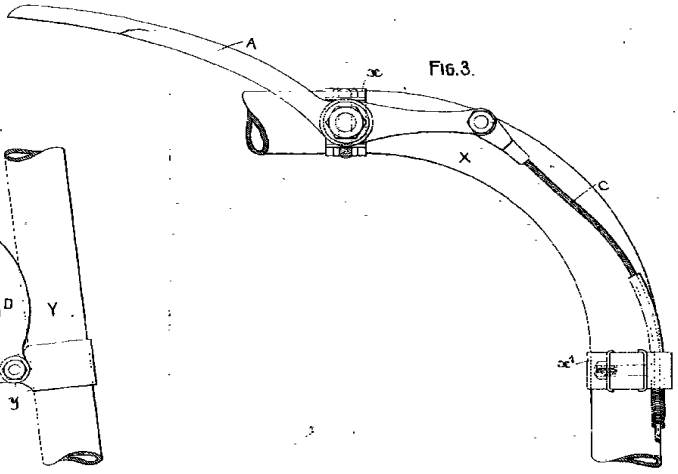
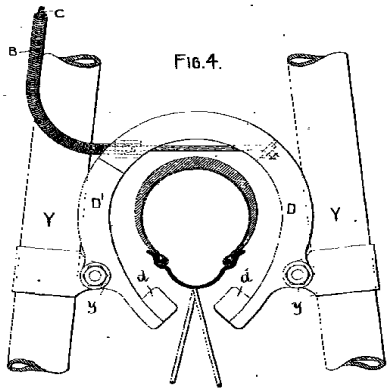


FIG. 4.



[This Drawing is a reproduction of the Original on a reduced scale.]

FIG. 1.

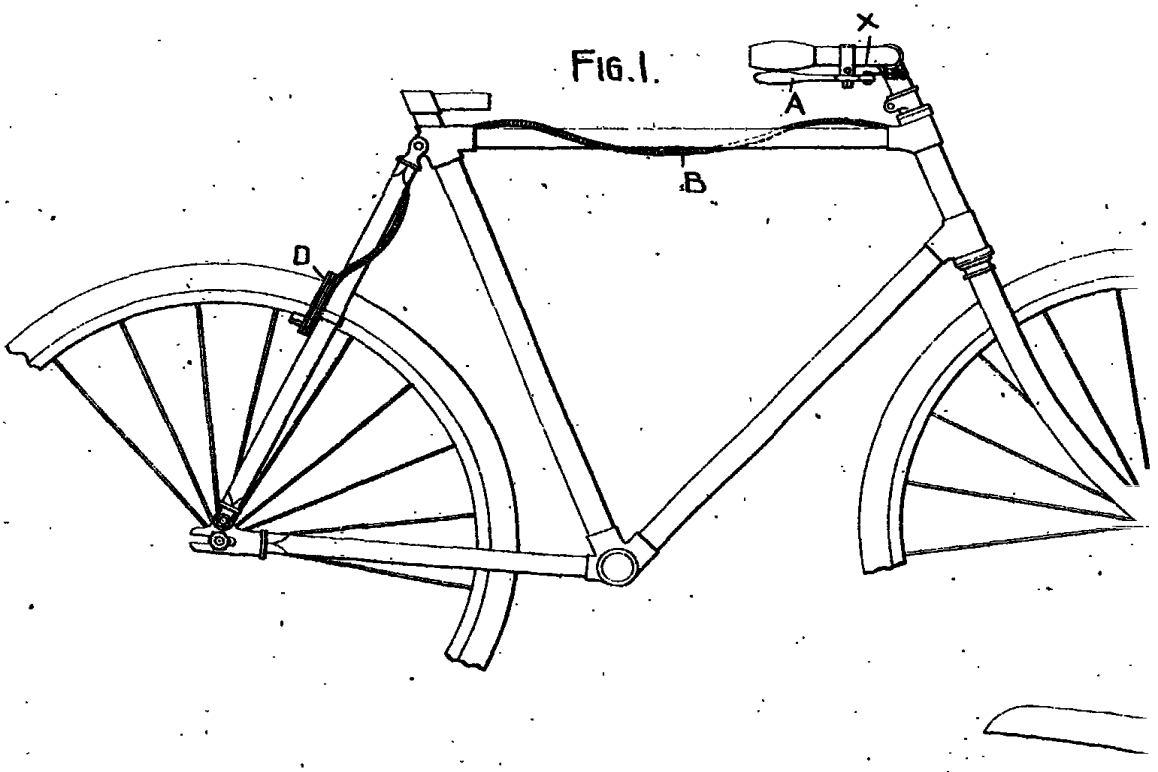


FIG. 4.

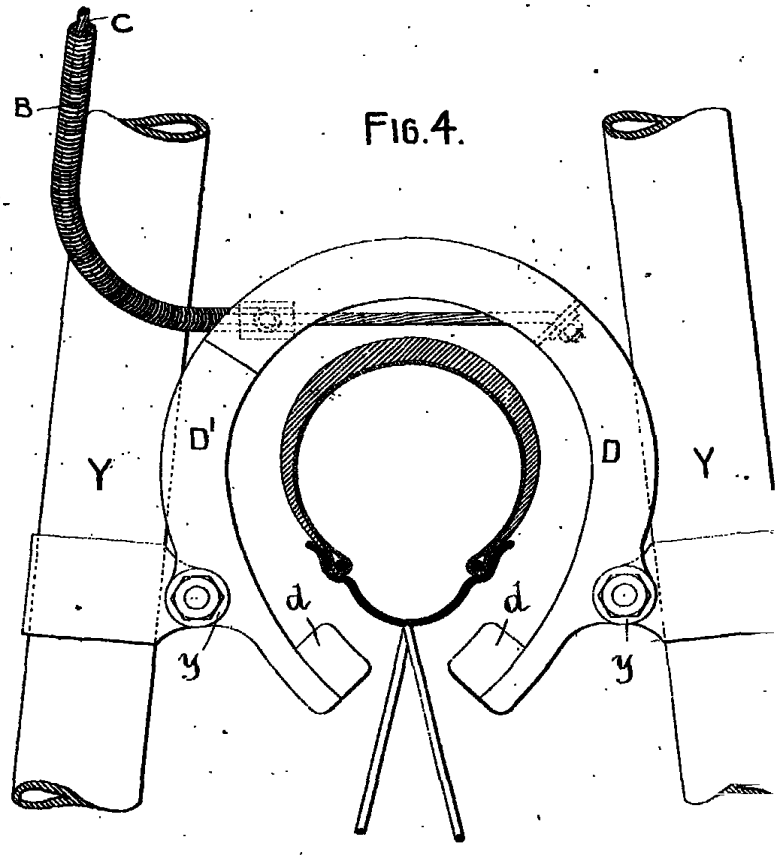


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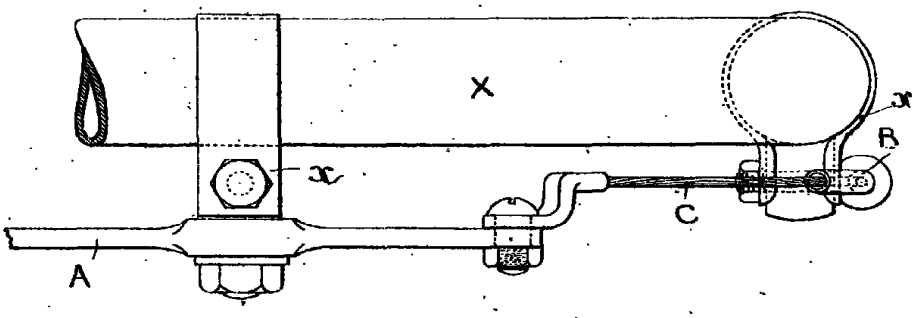
FIG. 2.



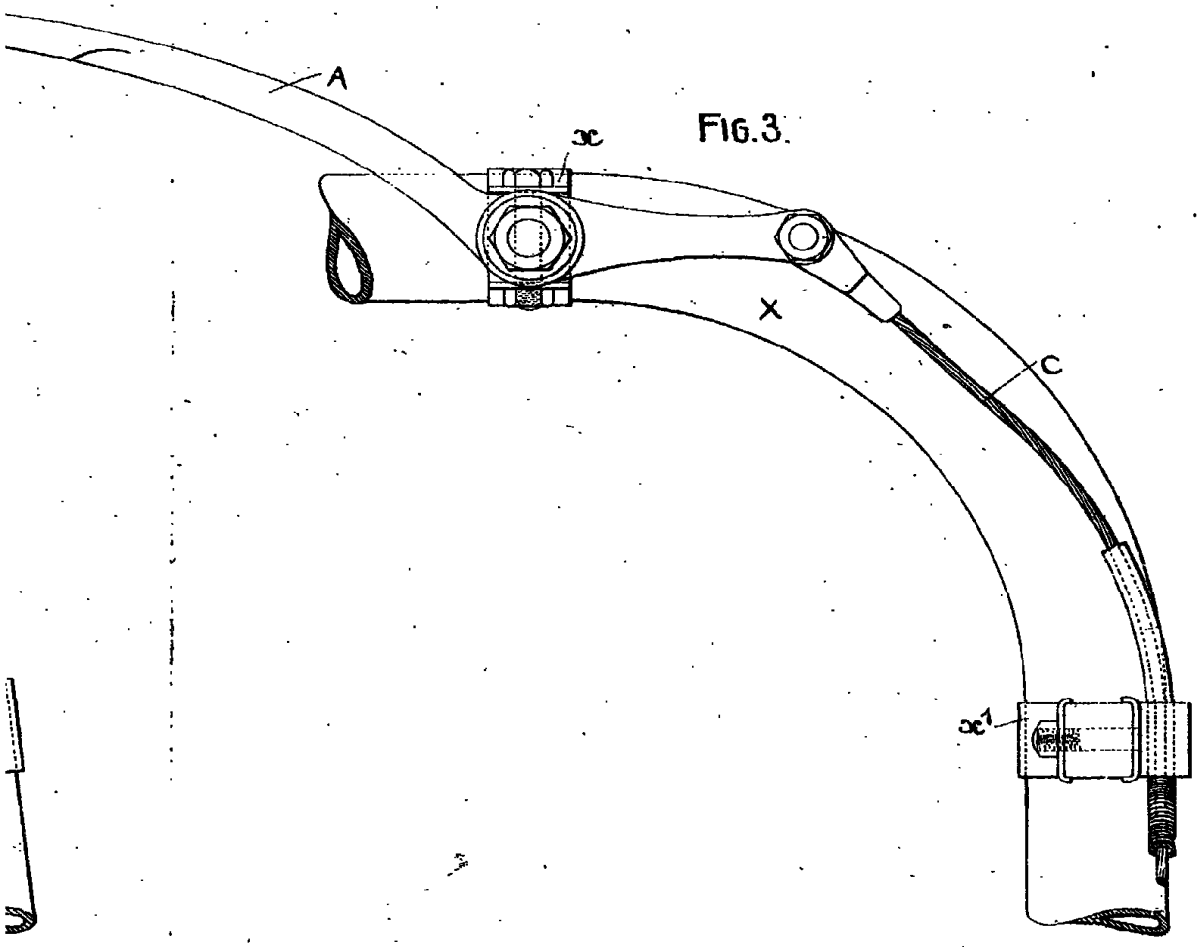


FIG. 3.

[This Drawing is a reproduction of the Original on a reduced scale.]

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